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### Title

A Rapid Determination of Ra-226 and Ra-224 via Alpha Spectrometry using Extraction Chromatography.

### Abstract

Alpha emitting radium isotope measurements in drinking waters have become very important in recent times. With traditional methods used currently in laboratories for Ra-226 and Ra-224 require a long ingrowth period and lengthy chemical separations. In EPA method 903.1 for Ra-226, it involves coprecipitation with barium sulfate followed by a purification step. Rn-222 daughter of Ra-226 is then allowed to ingrow for several days and finally measured by radon emanation technique.

Also with current methods, the short-lived Ra-224 measurements go unreported due to the long ingrowth periods involved in the technique. In order to measure the short-lived Ra-224 and long lived Ra-226 as rapidly as possible; a method was developed using a combination of ion exchange resin and extraction chromatography with measurement by alpha spectrometry.

Radium isotopes were preconcentrated from water samples using cation exchange resin; radium was then separated from other interfering isotopes using Eichrom Ln Resin. Ba-133 was used a tracer and measured by gamma counter. After the separation of radium, it was co-precipitated with barium sulfate (Sill 1987) and counted by alpha spectrometry (figure 1). Average Ra-226 recoveries in DI water were 85%. This presentation will describe the time saving technique along with its test results for other water matrices.

Alpha - Ra1p71of6.CNF\*

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Open Datasource

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Acquire

Start Stop

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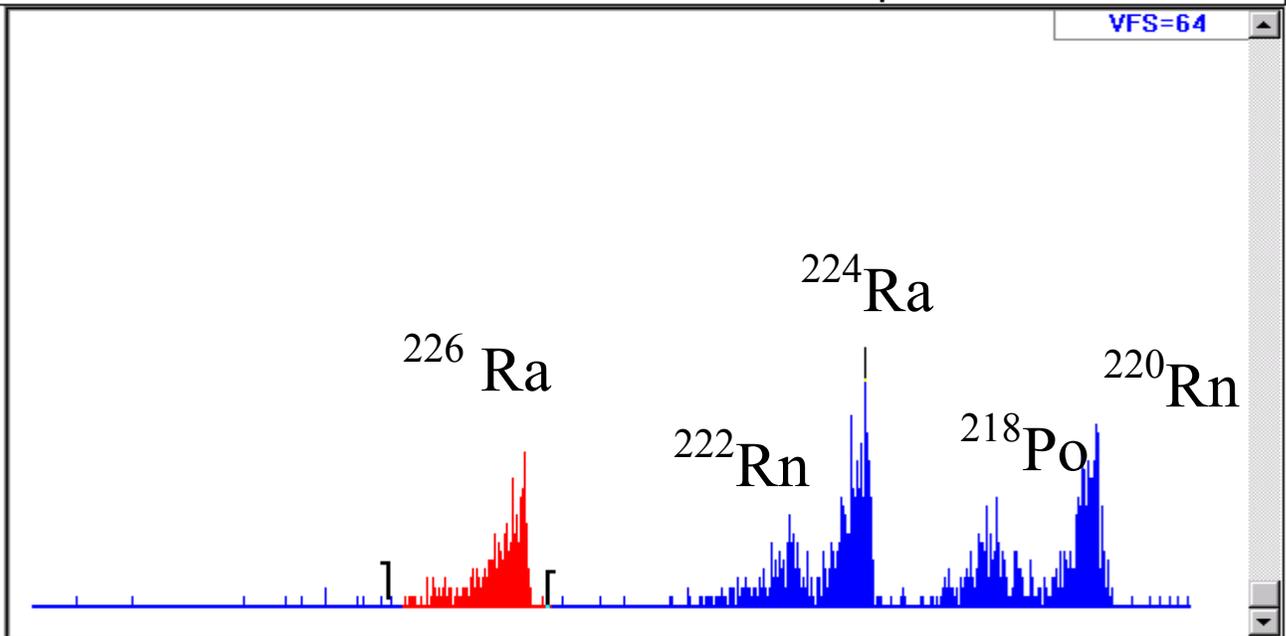
Clear

ROI Index:

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Datasource

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TIME INFO

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Dead Time:	0.00%	Live (secs.):	60000.15			60000	
Comp. Preset Region:	0 - 0 (channels)	Real (secs.):	60000.67			0	
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Open a Datasource

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